

SAFETY DEVICE FOR VEHICLE ACCELERATOR

BACKGROUND OF THE INVENTION

(a) Technical Field of the Invention

[0001]The present invention is generally related to vehicle safety, and
5 more particular to a safety device preventing unintended vehicle acceleration.

(b) Description of the Prior Art

[0002]Unintended vehicle acceleration usually occurs when a vehicle is
idle and ready to run. It is a condition unexpected by the vehicle driver and
often leading to traffic incidents.

10 [0003]Most unintended vehicle acceleration is usually caused by
improper operation from the driver. An ordinary vehicle has its acceleration
pedal and brake pedal next to each other. A driver therefore may accidentally
step on the acceleration pedal while he/she actually intends to brake.

[0004]Currently vehicles do not have an alert and protection device out of
15 the factory guarding against the sudden depression of acceleration pedal.

SUMMARY OF THE INVENTION

[0005]Therefore, the present invention teaches a safety device for vehicle accelerator,

[0006]which includes a control member.

5 [0007]The control member includes a microprocessor, a first variable resistor, and a buzzer. The control member is electrically connected to a vehicle's engine controller and acceleration pedal detector. When the acceleration pedal is suddenly depressed at an extreme speed, the acceleration pedal detector sends a signal to the control member to engage the buzzer. The
10 control member then converts and transmits the signal to the engine controller so that the engine controller reduces fuel injection, slows the vehicle down. The control member then turns off the buzzer.

[0008]The control member further includes at least a connection socket. The control member is housed in a casing member.

15 [0009]The casing member provides a through opening corresponding to the connection socket which allows detachable connection from a transmission cable. The transmission cable includes a first connector, a second connector, and a third connector. The first connector is connected to the connection socket. The second connector is connected to the acceleration
20 pedal detector. The third connector is connected to the engine controller.

[0010]The acceleration pedal detector includes a second variable resistor inside. The second variable resistor and the first variable resistor operate synchronously, and the first variable resistor sends the signal to the microprocessor.

5 [0011]The microprocessor then converts and transmits the signal to the engine controller. The engine controller reduces fuel injection to idle the vehicle, and then turns off the buzzer.

[0012]The extreme speed is that the acceleration pedal is quickly depressed in less than or equal to one second.

10 [0013]The control member further includes a sensitivity adjustment element for adjusting a sensitivity level of the control member.

[0014]The advantages of the present invention are as follows.

[0015]Through the joint operation of the microprocessor, first variable resistor, and buzzer, a vehicle is automatically slowed down by reducing fuel
15 injection when the acceleration pedal is quickly depressed at the extreme speed, thereby preventing the unintended vehicle acceleration.

[0016]In addition, as described above, the installation of the safety device is easy and convenient by just unplugging the acceleration pedal detector and
20 connecting it to the second and third connectors.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017]The present invention will be further described in detail below with reference to the drawings and specific embodiments.

[0018]FIG. 1 is a circuit diagram showing a control member of a safety
5 device for vehicle accelerator according to an embodiment of the present invention.

[0019]FIG. 2 is a circuit diagram showing the connection of the control member of FIG. 1 to a vehicle's acceleration pedal detector and engine controller.

10 [0020]FIG. 3 is a perspective diagram showing the appearance of the control member of FIG. 1.

[0021]Description of the symbols of the drawings:

[0022]10	control member
15 [0023]11	microprocessor
[0024]12	first variable resistor
[0025]13	buzzer
[0026]14	casing member
[0027]141	through opening
20 [0028]20	transmission cable

- [0029]21 first connector
- [0030]22 second connector
- [0031]23 third connector
- [0032]30 acceleration pedal detector
- 5 [0033]31 second variable resistor
- [0034]40 engine controller.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0035]The following descriptions are exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient
5 illustration for implementing exemplary embodiments of the invention.

Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

[0036]As shown in FIGS. 1 and 2, a safety device according to an
10 embodiment of the present invention includes a control member 10, which in turn includes a microprocessor 11, a first variable resistor 12, and a buzzer 13.

[0037]As shown in FIG. 3, the control member 10 further has at least a connection socket (not shown). The control member 10 is housed inside a casing member 14. The casing member 14 has a through opening 141
15 corresponding to the connection socket.

[0038]The connection socket provides detachable connection from a transmission cable 20. The transmission cable 20 includes a first connector 21, a second connector 22, and a third connector 23. The first connector 21 is plugged into the connection socket. The second connector 22 is connected to

an acceleration pedal detector 30 of a vehicle. The third connector 23 is connected to an engine controller 40 of the vehicle.

[0039]In other words, the control member 10 is electrically connected to the vehicle's acceleration pedal detector 30 and engine controller 40,

5 respectively. Inside the acceleration pedal detector 30, there is a second variable resistor 31. The microprocessor 11 and first variable resistor 12 connect and control the second variable resistor 31 through a SPI (Serial and Parallel Interface) protocol. The microprocessor 11 provides high and low voltage levels to drive the buzzer 13 through an IO (Input and Output) port.

10 [0040]When the acceleration pedal is suddenly pressed at an extreme speed (i.e., the acceleration pedal is quickly depressed in less than or equal to one second), the second variable resistor 31 of the acceleration pedal detector 30 sends a signal to the control member 10 so that the second variable resistor 31 and the first variable resistor 12 operate synchronously. The first variable
15 resistor 12 then sends a signal to the microprocessor 11 to engage the buzzer 13 so that the driver of the vehicle is alerted about the acceleration pedal's status. The control member 10 then converts and transmits the signal to the engine controller 40. The engine controller 40 reduces fuel injection to idle the vehicle. The control member 10 then turns off the buzzer 13.

20 [0041]When a driver intentionally slows down the vehicle by releasing

the acceleration pedal, the control member 10 automatically turns off the buzzer 13, and stops sending signal to the engine controller 40, so that the control member 10 is restored to a normal operating mode.

[0042]The control member 10 further includes a sensitivity adjustment
5 element adjusting a detection sensitivity of the control member 10.

[0043]While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device
10 illustrated and in its operation can be made by those skilled in the art without departing in any way from the claims of the present invention.

I CLAIM:

1. A safety device for vehicle accelerator, comprising a control member,
wherein the control member comprises a microprocessor, a first
variable resistor, and a buzzer;
5 the control member is electrically connected to a vehicle's engine
controller and acceleration pedal detector; and
when the acceleration pedal is suddenly depressed at an extreme
speed, the acceleration pedal detector sends a signal to the control
member to engage the buzzer, the control member converts and
10 transmits the signal to the engine controller so that the engine
controller reduces fuel injection to slows the vehicle down, and the
control member then turns off the buzzer.
2. The safety device according to claim 1, wherein the control member
further comprises at least a connection socket; the control member is
15 housed in a casing member; and the casing member has a through
opening corresponding to the connection socket.
3. The safety device according to claim 2, wherein the connection
socket provides a detachable connection to a transmission cable; the
transmission cable comprises a first connector, a second connector,
20 and a third connector; the first connector is connected to the

connection socket; the second connector is connected to the acceleration pedal detector; and the third connector is connected to the engine controller.

4. The safety device according to claim 1, wherein the acceleration
5 pedal detector comprises a second variable resistor inside; the second variable resistor and the first variable resistor operate synchronously; and the first variable resistor sends a signal to the microprocessor.
5. The safety device according to claim 4, wherein, the microprocessor
10 converts and transmits the signal to the engine controller; the engine controller reduces fuel injection to slow the vehicle down; and the control member turns off the buzzer.
6. The safety device according to claim 1, wherein the extreme speed is that the acceleration pedal is quickly depressed in less than or equal to one second.
- 15 7. The safety device according to claim 1, wherein the control member further comprises a sensitivity adjustment element for adjusting a sensitivity level of the control member.